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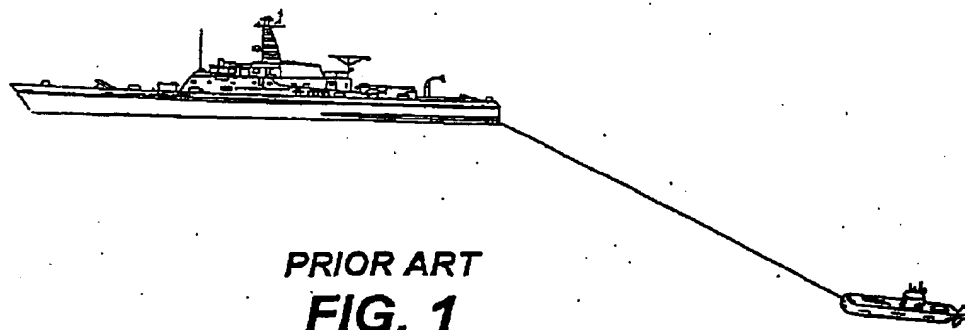
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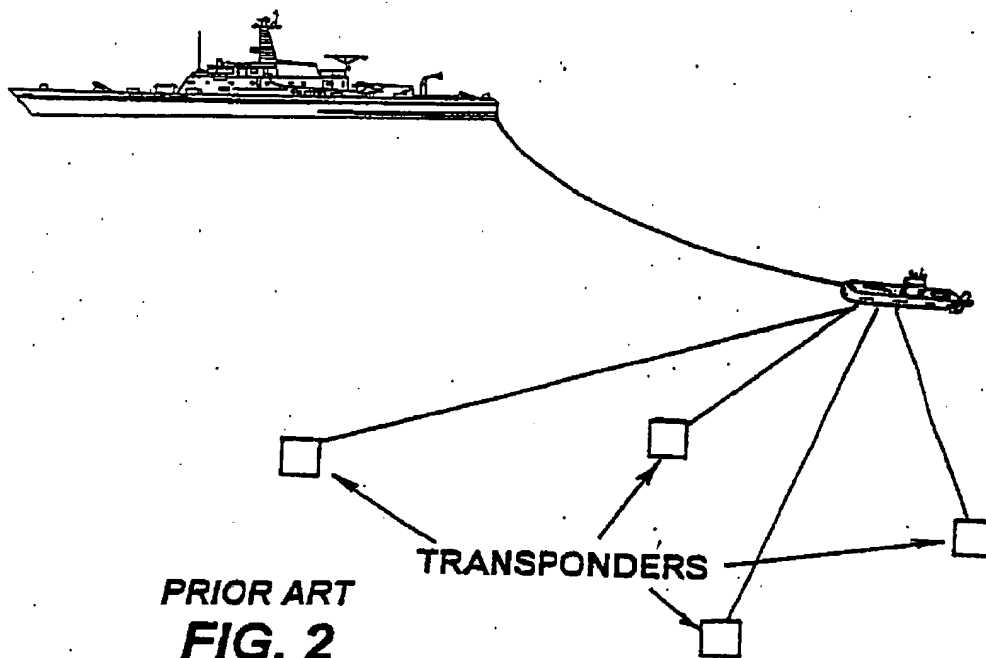
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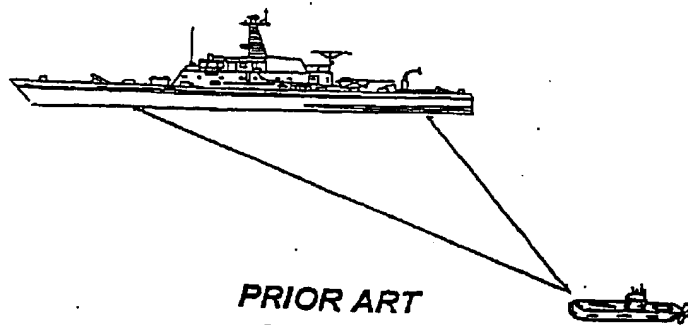
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**PRIOR ART
FIG. 1**



**PRIOR ART
FIG. 2**



PRIOR ART
FIG. 3

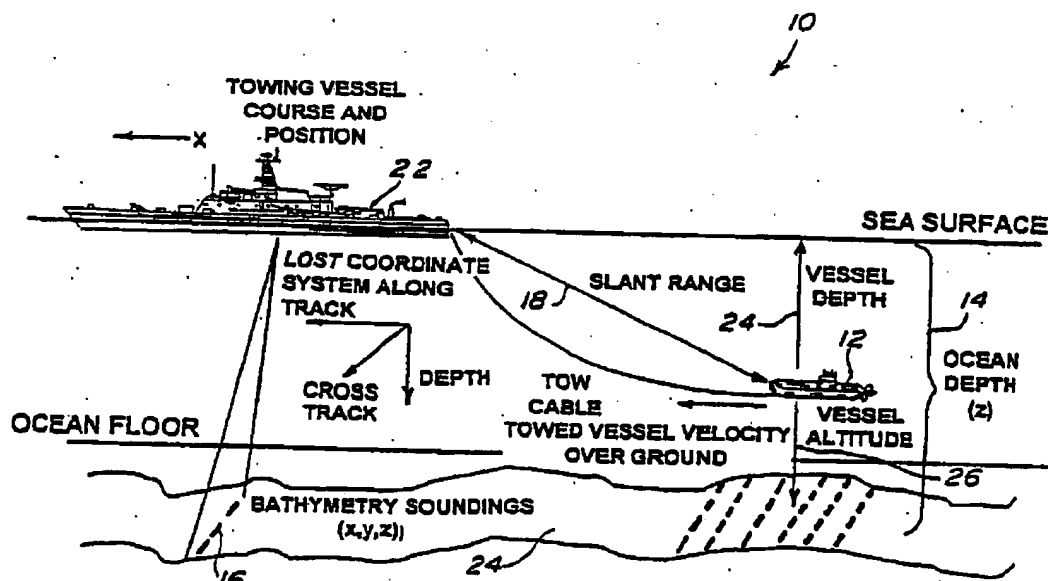
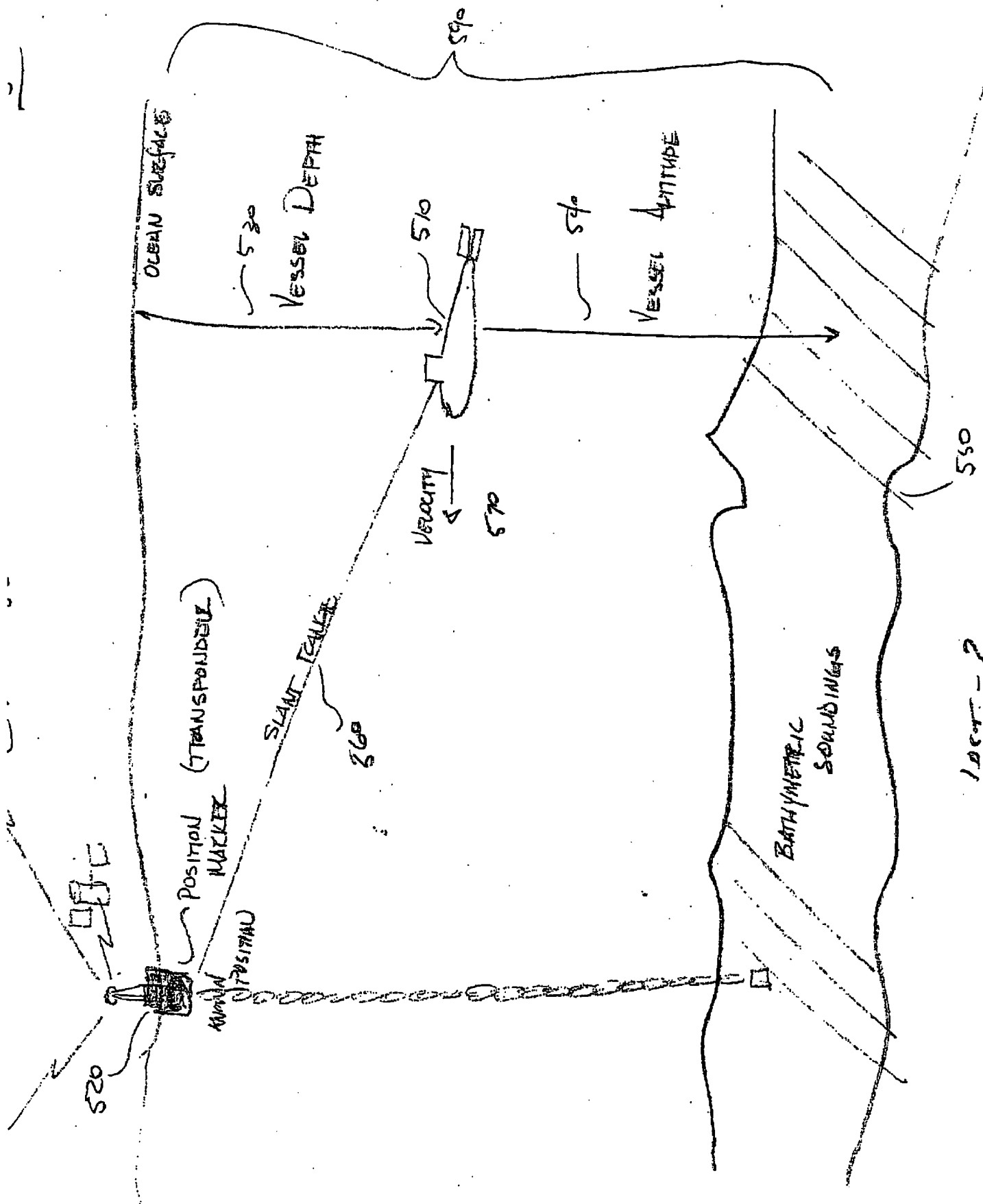


FIG. 4

PRIOR ART



EXAMPLE OF LOST 2 EMPLOYING
MULTIPLE UUV'S

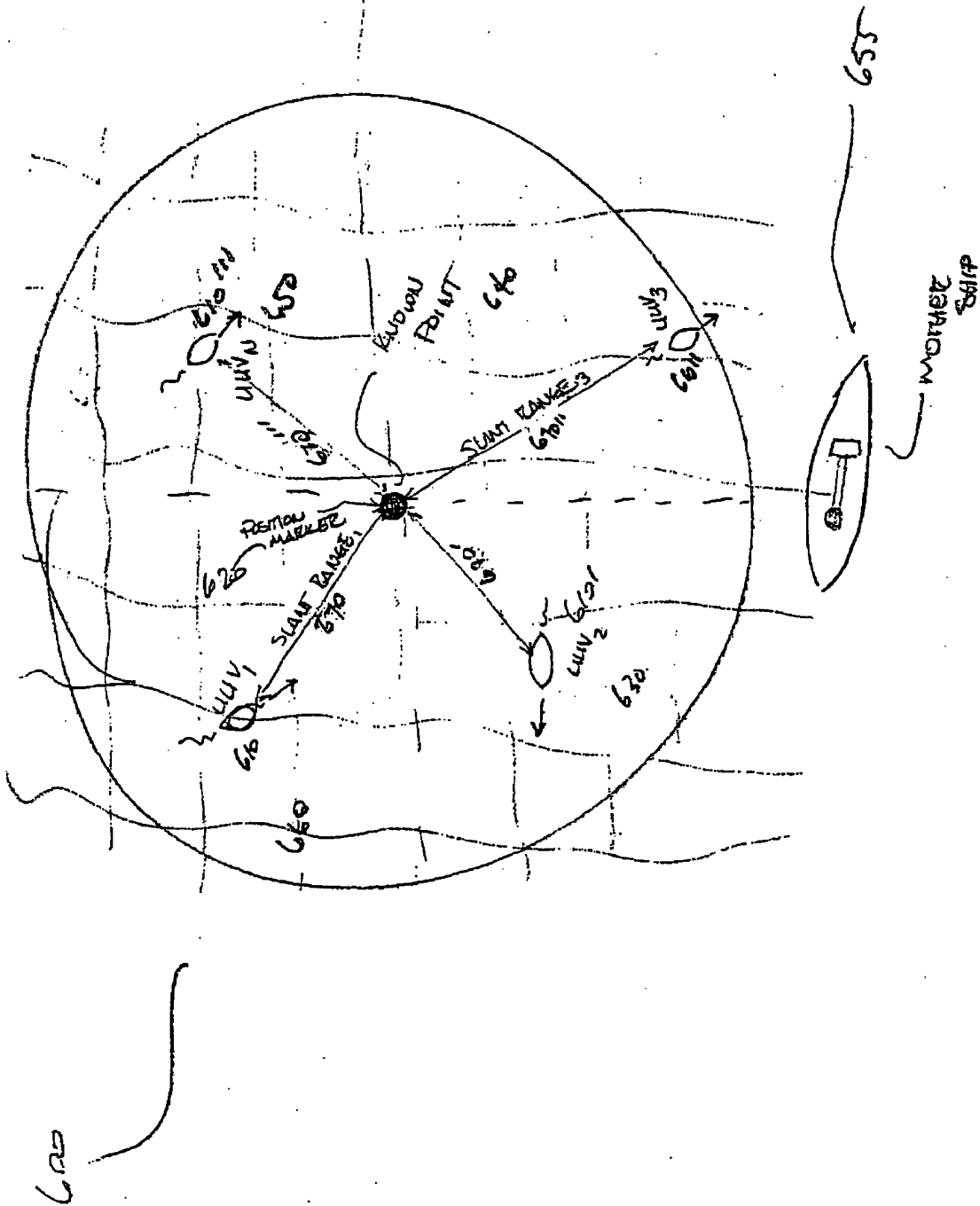
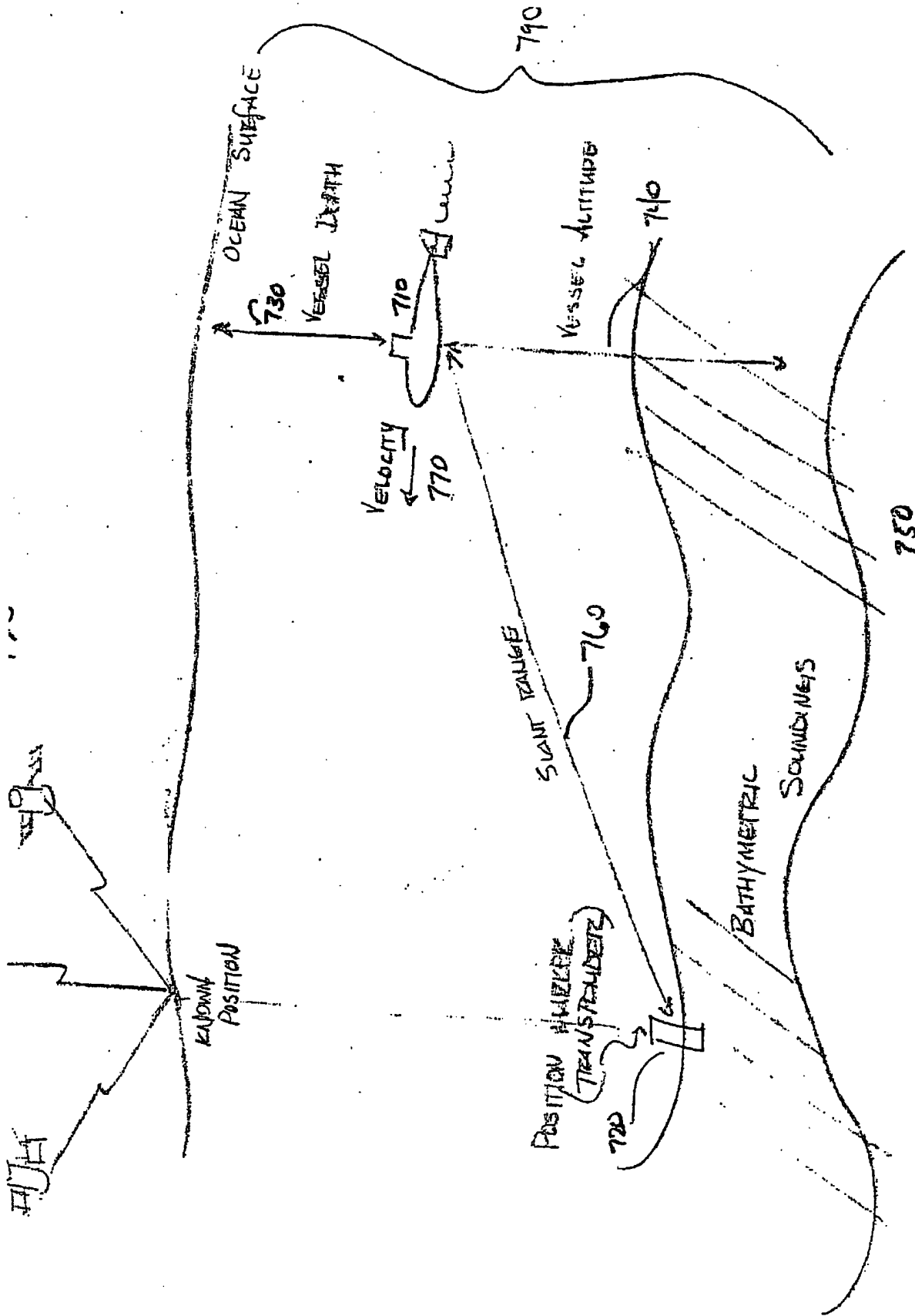
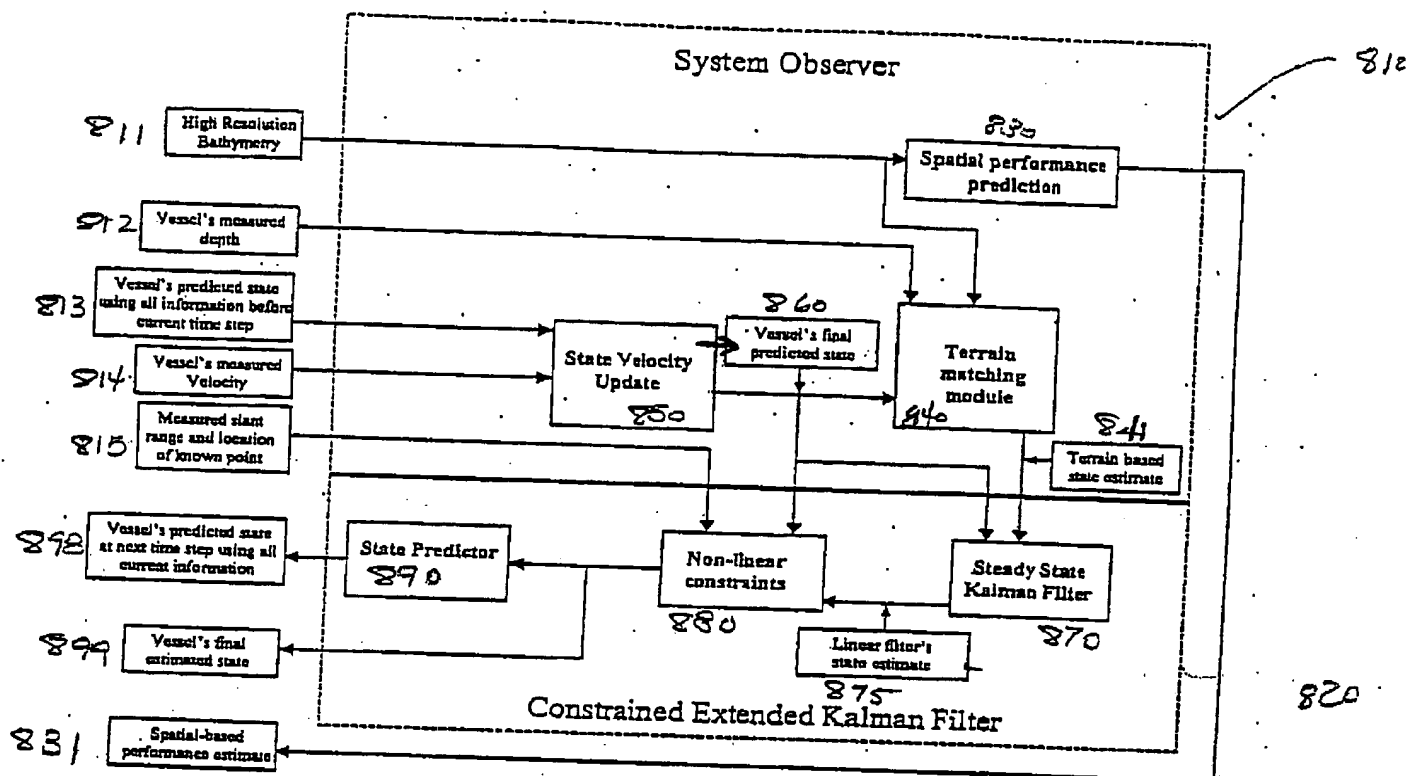


FIGURE 6



LOST - 2

FLUKE 7



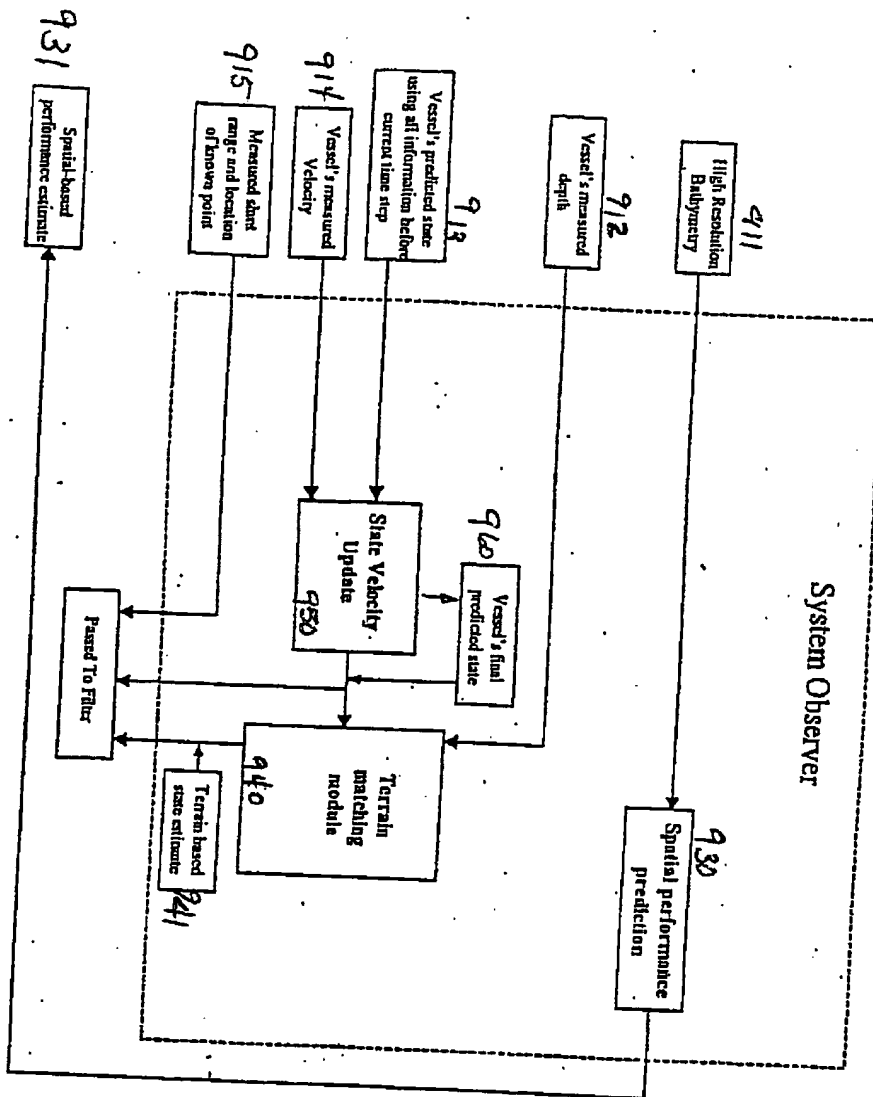
Block diagram of the system showing the two primary subsystems

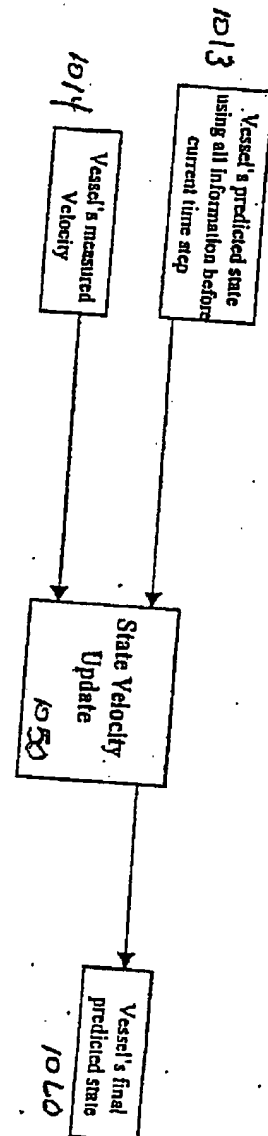
FIGURE 8

Flow

FIGURE 9

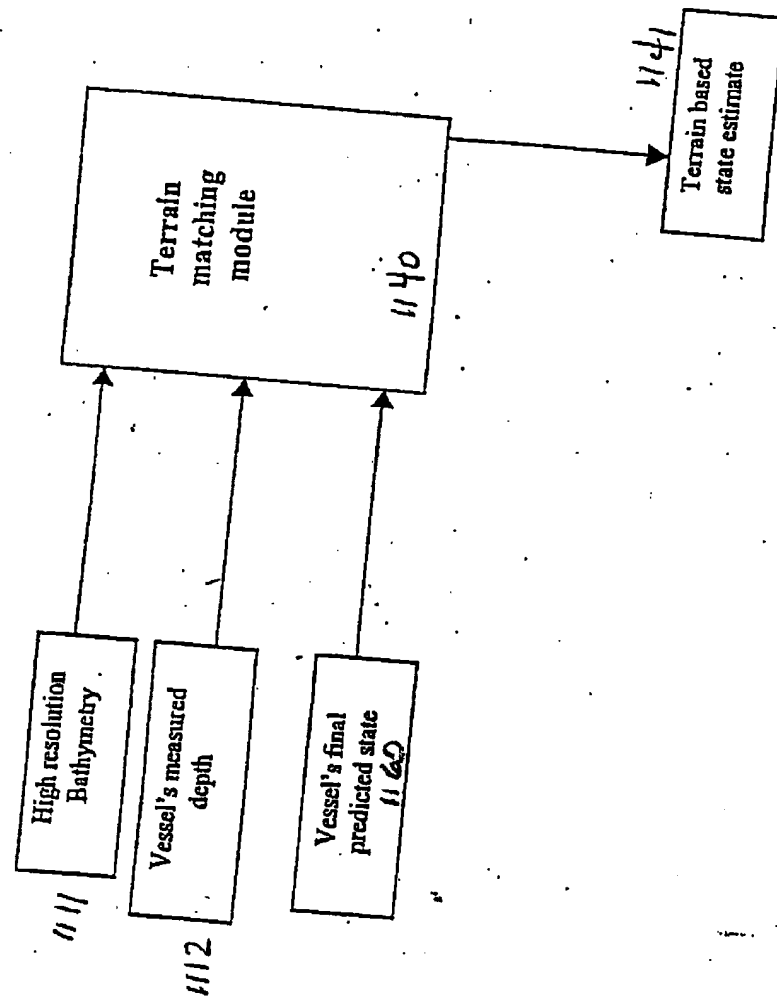
Block diagram of the system observer subsystem showing the system flow





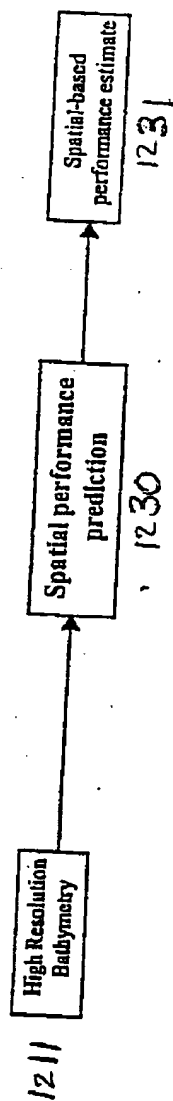
-Input/Output diagram for the state velocity update

FIGURE 10



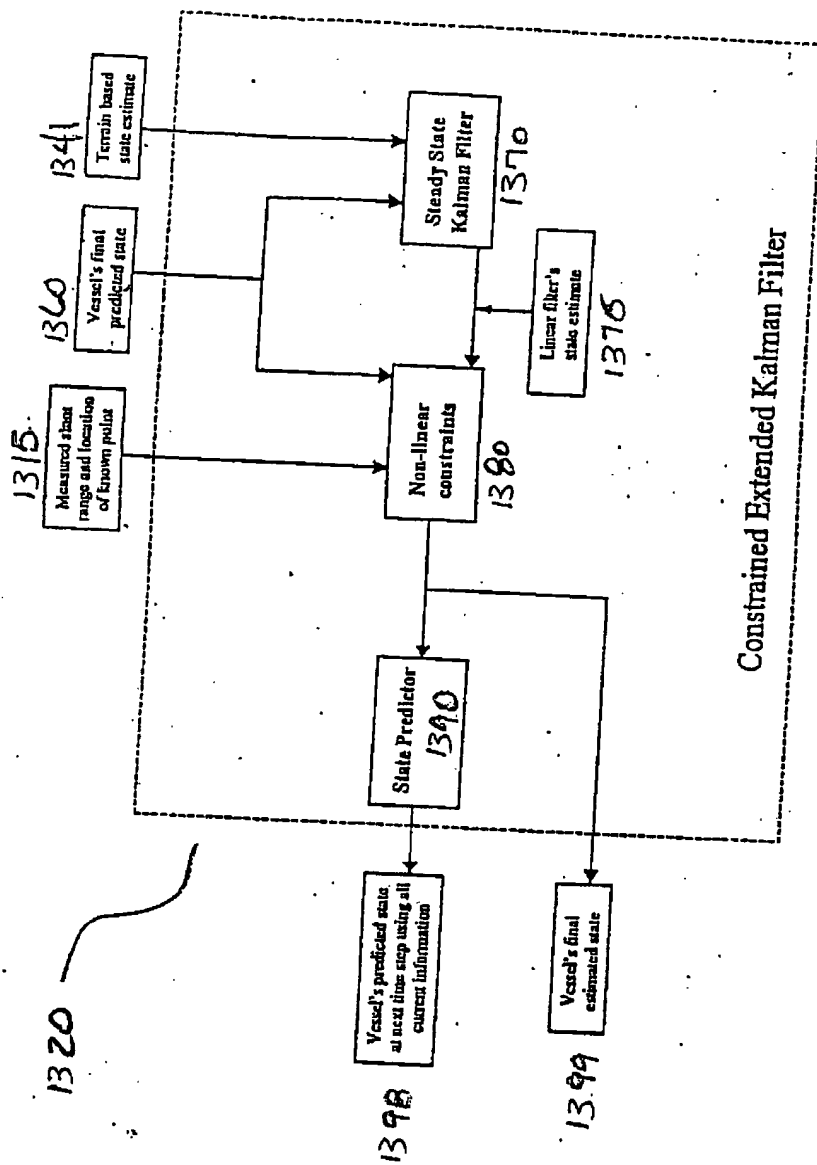
Input/Output diagram for the terrain matching module

Figure 11



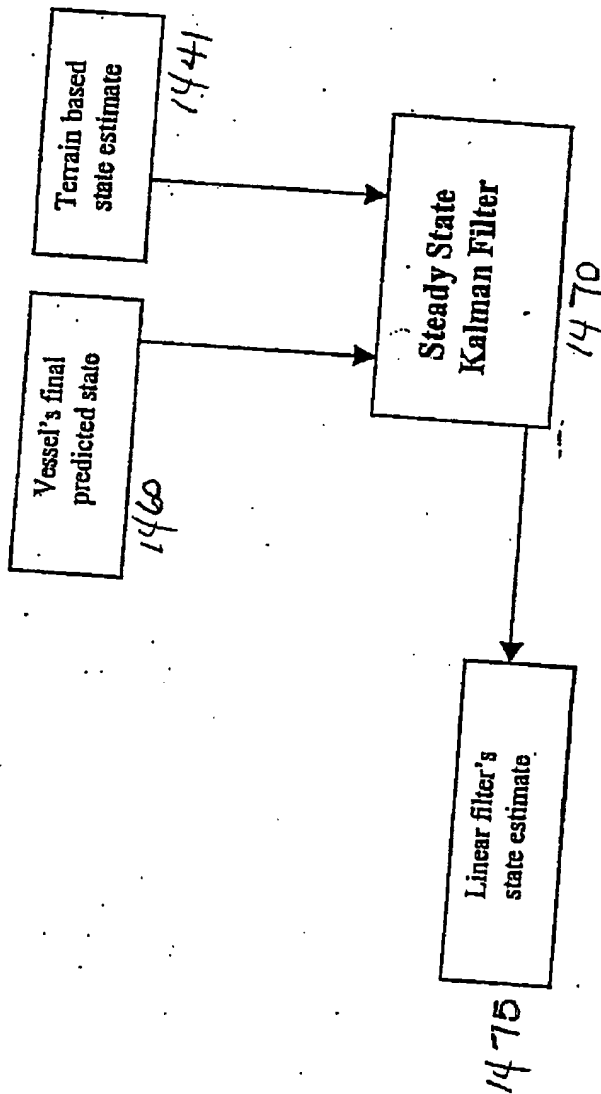
Input/Output diagram for the spatial based performance prediction

Figure 12



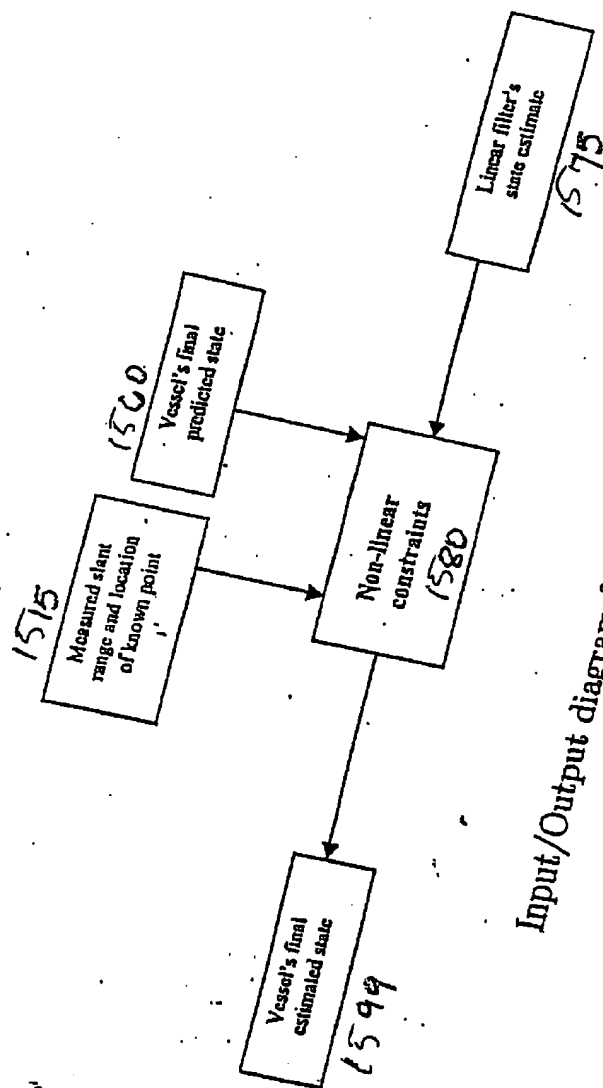
Block diagram of the constrained extended Kalman filter subsystem showing the signal flow

FIGURE 13

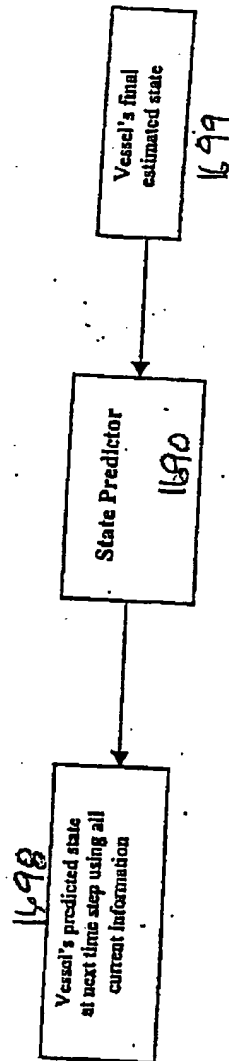


Input/Output diagram for the steady state Kalman filter

FIGURE 14



Input/Output diagram for the nonlinear constraint module.
FIGURE 15



Input/Output diagram for the state predictor

FIGURE 16